Approved For Release 2001/09/05: CIA-RDP81B00880R000100220001-8 **b/Release Instructions O** *USAF Decl 03 MAY 61 05412 DIRECTOR 25X1A DPD (1-2-3-4-5-5 ROUTINE 44 · S/C (11) MHC 03 MAY 61 0738Z TOR: IN 06934 25X1A 25X1A 1472 25X1A TACKLE OPS 25X1A ALTERNATOR FAILED ON ELINT TEST MISSION SWITCH WAS TURNED ON WHEN ENGINE POWER REACHED 87 PERCENT. THE ALTERNATOR FAILED WITHIN FIVE MINUTES. AFTER REVIEWING SOME OF THE PAST HISTORY OF ALTERNATOR FAILURES WITH THIS ENGINE BELIEVE MODIFICATION OF SYSTEM POSSIBLY SHOULD BE CONSIDERED. SUGGEST POSSIBLE CONVERSION FROM ENGINE DRIVEN ALTERNATOR TO THE USE OF AN INVERTER. IN ADDITION TO A MORE RELIABLE AC SYSTEM FOR ELINT OPERATION, SECOND INVERTER COULD BE USED FOR BACK UP INSTRUMENT POWER IN THE EVENT OF MAIN INVERTER FAILURE. 25X1A AFTER CONSULTING WITH BELIEVE ADEQUATE DC POWER IS AVAILABLE TO SUPPORT INVERTER POWER TO OPERATE ELINT SYSTEMS. END OF MESSAGE DOCUMENT NO. NO CHUNGE IN CLASS. U M DECLARAGED CLASC CHARGE TO: TS S NEXT REVIEW DATE: AUTH: HR 70-2 DATE: 2/11/4/ REVIEWER: 037169

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OF A FREQUENCY REDUCTION AT REDUCED ENGINE SPEEDS FOR LONG RANGE MISSIONS. THE FREQUENCY RANGE IS 420 CPS AT T.O. TO 350 CPS AT RPM AND ONE WALE WALE PROFILES AS OUTLINED IN THE FLIGHT HANDBOOK. ALTERNATE CRUISE PROFILE IS CONTAINED IN REF MSG.

THE SUPPLIERS OF SYSTE'S HILL VI, VII, WERE CONTACTED AS TO THE EFFECTS OF OPERATING THE SYSTEMS AT 350 CPS. SYSTEM III AND VI

25X1A OVERHEATING OF TRANSFORMERS IS THE CRITICAL ITEM AT 350 CPS.

INFORMS US THAT TRANSFORLERS CAPABLE OF OPERATING WITHIN THE RANGE OF 420-350 CPS ARE AVAILABLE AND CAPABLE OF BEING INSTALLED IN SYSTEMS III AUD VI. THESE TRANSFORLERS CAN BE SHIPPED TO DETACHMENTS IN SIX WEEKS. OHE TRANSFORMER REQUIRED IN SYSTEM III AND FOUR TRANSFORMERS REQUIRED IN SYSTEM VI. THESE NEW TRANSFORMERS ARE SLIGHTLY HEAVIER THAN THE ORIGINAL. THE WEIGHT INCREASE IS APPROX 25X1A FOUR POUNDS. 25X1A

SYSTEM VII

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STATE THAT THERE IS NO PROBLEM OPERATING

THIS SYSTEM AT 350 CPS. THE SYSTEM HAS OPERATED AT LOWER FREQUENCIES THAN 350 CPS, BUT THEY FELT THAT 350 CPS WAS THE LOWEST FREQUENCY "query aupexon 814 and blowers on 0 350 cycles = THAT THEY WOULD GUARANTEE. SYSTEM: IV

THE COOLING BLOWERS IN THIS SYSTEM ARE CRITICAL AT REDUCED FREQUENCIES. NO INFO IS AVAILABLE AS TO THE EFFECT OF LOW FREQUENCIES, HOWEVER, INTEND TO TEST THIS SYSTEM AT 350 CPS TO DETERMINE THE EFFECT AT THE LOWER FREQUENCY, AND TO

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TAKE ANY CORRECTIVE ACTION NECESSARY TO INSURE PROPER OPERATION.

IT IS OUR UNDERSTANDING THAT HAS REQUESTED THESE TESTS NOT 25X1A

BE CONDUCTED UNTIL ALFA LATER DATE. THE SYSTEM AS OUTLINED IN

PARA 3 ABOVE WILL ADD APPROX 40 POUNDS, INCLUDING ALTERNATOR, TO

THE BASIC AIRPLANE, OR 35 POUNDS LESS THAN THE EXISTING HYDRAULIC

DRIVEN ALTERNATOR SYSTEM. DUE TO THE LIGHTNESS AND SIMPLICITY OF

THE SYSTEM OUTLINED ABOVE IN PARA 3, WE REQUEST APPROVAL OF THIS

SYSTEM AS A PERMANENT INSTALLATION. REQUEST THAT PERMIT

BLOWER TESTS ON SYSTEM IV TO PROCEED.

END OF MESSAGE

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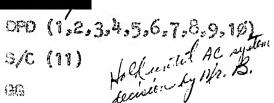
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ATTNE

TOR:

- REF TYPE OF UZC MISSION REQUIRED TO MAINTAIN A MINIMAN A.C. POWER FREQUENCY OF 380 CYCLES. FOR INSTANCE ON THE LEVEL AT 76,000 FT MISSION, THE POWER WOULD BE REDUCED TO MOLD 76,000 FT FOR APPOX 2 HOURS. AT THIS TIME ENGINE SPEED WOULD BE HELD CONSTANT TO INSURE CONSTANT ALTERNATOR FREQUENCY. THE ADROBATY WOULD THEN SLOWLY CAIN ALTUTUDE AS FUEL WAS BURNED. THE RESULT OF THIS PROCEDURE WOULD REDUCE THE ENDURANCE BY 15 MIN. THAT IS, FROM 9 WRS TO 8 MRS US MIN.
- 2. THE DIRECT DRIVEN ALTERNATOR HAS AN ADJUSTABLE VOLTAGE PLANCE OF 115 VOLTS TO 125 VOLTS. IT IS NORMALLY SET AT 115 VOLTS. 3 PMSE.

END OF MESSAGE

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- 1. SUGCEST THE USE OF A TRANSISTOR AIRBORNE INVERTER MAY BE SOLUTION TO OUR A.C. GENERATOR PROBLEMS.
- 2. SUCH A DEVICE IS ADVERTISED IN THE JULY 31, 1959 ISSUE OF "ELECTRONICS", PAGE 123. THIS PARTICULAR UNIT ONLY RATED FOR 2 KVA OUTPUT, BUT IT IS NOTED THERE ARE OTHER MODELS AVAILABLE. PLEASE NOTE EXCEPTIONAL CLAIMS FOR FREQUENCY STABILITY.

END OF MESSAGE

DOCUMENT NO.

NO CHANGE IN CLASS. LI

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DATE: 2/11/8/ REVIEWER: 037169

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